

Work Order ID 58172

April 27, 2010 9:22:07 AM



Page 1

Item ID: D212-664-101

Accept



Setup Start



Revision ID:

Item Name: Crosstube Fwd

Stop



Start Date: 27/04/2010 Start Qty: 1.00



Cust Item ID:

Required Date: 11/05/2010 Req'd Qty: 1.00



Customer:

Reference:

Approvals:

Process Plan: J

Date: _____

Tooling: _____

Date: _____

Run Start



QC: _____

Date: _____

SPC (Y/N): _____

Date: _____

Stop

Sequence ID/
Work Center IDOperation
DescriptionSet Up/
Run HoursDraw
NumberDraw
Rev.Plan
CodeAccept
QtyReject
QtyReject
NumberReject
NumberInsp.
Stamp

Draw Nbr	Revision Nbr
D212-664-141	Rev D

100



DOCUMENT CONTROL

DC

Document Control

Memo

0.00

0.00

Photocopy bluefile and create labels as per PPP D212-664-101 CHG003

Sulusos

J for BG 10/05/04

110



Pick Kit

0.00

Packaging

0.00

Memo

Packaging

Packaging

IX MB 10-04-28

120



BENDING MACHINE - CROSSTUBES

0.00

Memo

0.00

CNC Bend 2:

CNC Alpha 160 Bender

Bend tube as per Dwg D212-664-141 using CNC bender program 212-fw and Folio:FT015

IV MB 10-04-28

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____
 Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

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Customer:

Reference:

Approvals:	Process Plan:	Date:	Tooling:	Date:	Run	Start
	QC:	Date:	SPC (Y/N):	Date:	Stop	



Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Draw Number	Draw Rev.	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
130	QC15- Crosstube Dimensional Check	0.00	6-04-00			Q10			

QC

Quality Control

140

Crosstubes

Crosstubes

Crosstubes

0.00

Memo 0.00

1-Drill pilot holes in tube as per Dwg D212-664-141 using drill Jig DT8548 & DT8549

2-Ream hole to finish size in tube as per Dwg D212-664-141 using drill Jig DT8548 & DT8549. Check dimensions between holes, both sides on both cuffs, to ensure alignment with saddle holes.

3-Scribe part # and batch # using vibrating stylus as per Dwg D212-664-141

4-Deburr & Inspect for surface damage. Repair damage within limits as per Dwg D212-664-141

MB 10-04-28
MB 10-04-29
MB 10-04-29

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____
 Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

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Page 3

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Required Date: 11/05/2010 Req'd Qty: 1.00

Reference:

Approvals:

Process Plan:

Date:

Tooling:

Date:

Run

Start



QC:

Date:

SPC (Y/N):

Date:

Stop

Sequence ID/
Work Center ID

150



HandFXtube

Hand Finishing Crosstubes

Operation
Description

Crosstubes Chemical Conversion

Set Up/
Run Hours

0.00

Draw
NumberDraw
Rev.Plan
CodeAccept
Qty

1

Reject
Qty

-

Reject
Number

-

Insp.
Stamp

AWM

4-4-29

160



QC

Quality Control

QC5- Inspect part completeness to step on W/O

0.00

S 10/04/29

①

170



Outsource2

Outsource process - NDT

Outsource process - NDT per QSI038 4.1

0.00

Memo

0.00

Liquid Penetrant Inspection as per QSI 038
 Issue P/O: 11786
 LPI as per ASTM 1417 Level 2
 Attach copy of NDT results to work order

CD 10/4/29 ①

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____
 Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

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April 27, 2010 9:22:07 AM



Page 4

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Start Date: 27/04/2010 Start Qty: 1.00



Cust Item ID:

Required Date: 11/05/2010 Req'd Qty: 1.00



Customer:

Reference:

Approvals: Process Plan:

Date:

Tooling:

Date:

Run Start



QC:

Date:

SPC (Y/N):

Date:

Stop


**Sequence ID/
Work Center ID**

180



Packaging

Packaging

**Operation
Description**
Set Up/
Run HoursDraw
NumberDraw
Rev.Plan
CodeAccept
QtyReject
QtyReject
NumberReject
NumberInsp.
Stamp

Receive & Inspect for Damage & Mat'l Certs

0.00

Packaging

Memo

0.00

Ensure copy of NDT results attached to work order.

190



QC

Quality Control

QC5- Inspect part completeness to step on W/O

0.00

Memo

0.00

Inspect for damage & ensure results are as per Dwg D212-664-141

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____
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Page 5

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Cust Item ID:

Required Date: 11/05/2010 Req'd Qty: 1.00



Customer:

Reference:

Approvals: Process Plan: _____ Date: _____

Tooling: _____ Date: _____

Run Start



QC: _____ Date: _____

SPC (Y/N): _____ Date: _____

Stop

Sequence ID/
Work Center IDOperation
DescriptionSet Up/
Run HoursDraw
NumberDraw
Rev.Plan
CodeAccept
QtyReject
QtyReject
NumberInsp.
Stamp

200

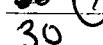


SprayPaint

Spray Painting per QSI005 4.2

0.00

10



Spray Painting

SprayPaint

Memo

0.00

1-Prime inside and outside crosstube as per QSI 005 4.2
2-Paint outside crosstube with White Imron as per QSI 005 4.2

PRIME:

Start Time: 7:30Finish Time: 8:30

PAINT:

Start Time: 12:30Finish Time: 1:30

210



QC

QC14- Inspect Spray Paint

0.00

Quality Control

Memo

0.00

Then, Wrap in plastic bag to protect from scratches

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

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 Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

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April 27, 2010 9:22:07 AM



Page 6

Item ID: D212-664-101

Accept



Setup Start



Revision ID:

Item Name: Crosstube Fwd

Stop



Start Date: 27/04/2010 Start Qty: 1.00



Cust Item ID:

Required Date: 11/05/2010 Req'd Qty: 1.00



Customer:

Reference:

Approvals:

Process Plan:

Date:

Tooling:

Date:

Run Start



QC:

Date:

SPC (Y/N):

Date:

Stop

Sequence ID/
Work Center ID

220



Crosstubes

Operation
DescriptionSet Up/
Run HoursDraw
NumberDraw
Rev.Plan
CodeAccept
QtyReject
QtyReject
NumberInsp.
Stamp

05 03

ML

10



Crosstubes

Memo

0.00

1- Lightly scuff the bonded area using a 320 grit sand paper and clean the area with 41058 wash 'n' wipe
 2-Install supports with magnobond as per QSI 015 Adhere for 12 Hrs
 A/R 6398 Magnobond Batch: 14021 exp. 01/2011

Torque: ML 10.05.04

230



QC

Quality Control

QC5- Inspect part completeness to step on W/O

0.00

S 10/05/04

(R)

240



Packaging

Pick Kit

0.00

10-5-4 sf

Packaging

Memo

0.00

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____
 Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
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NOTE: Date & initial all entries

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April 27, 2010 9:22:07 AM



Page 7

Item ID: D212-664-101

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Setup Start



Revision ID:

Item Name: Crosstube Fwd

Stop



Start Date: 27/04/2010 Start Qty: 1.00



Cust Item ID:

Required Date: 11/05/2010 Req'd Qty: 1.00



Customer:

Reference:

Approvals:

Process Plan:

Date:

Tooling:

Date:

Run Start



QC:

Date:

SPC (Y/N):

Date:

Stop

Sequence ID/
Work Center ID

250



QC

Quality Control

Operation
Description

QC4- 100% Inspect kits for completeness

Set Up/
Run Hours

0.00

S wlost 05

Draw
NumberDraw
Rev.Plan
CodeAccept
QtyReject
QtyReject
NumberInspec.
Stamp

260



Packaging

Packaging

Packaging

0.00

Memo

0.00

Identify and pack for shipping as per PPP D212-664-101

Ne J.R

270



QC

Quality Control

QC21- Final Inspection - Work Order Release

0.00

Memo

0.00

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____
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			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Picklist Print

April 27, 2010 9:22:12 AM

Page 1

Work Order ID:- 58172



Parent Item: D212-664-101



Parent Item Name: Crosstube Fwd

Start Date: 27/04/2010

Required Date: 11/05/2010

Comments:

IPP Rev:E 04.02.16 Reformat KJ/DS

Start Qty: 1.00

IPP Rev:F 06-03-29 Remove Coments on Pick List JLM

Required Qty: 1.00

IPP Rev:G 07-04-30 As per Rev C JLM

Component Item ID/ D212-664-101TRN	Replacement	Mfg/ Manufactured	Bin No	Primary	Last	Route 110	Unit of Each	Qty on 3.0000	Remaining 1.0000	Qty	Date	Status
											B-58031 MR	10-04-28

Crosstube Turning Detail

Warehouse

Location

Main Warehouse

LG	3
57439	1
57440	1
57868	1

D3595-063-450

Manufactured

No

230

Each

54.1200

4.2105

RUBBER CUSHION

Warehouse

Location

Main Warehouse

LG	54.12
52447	9.12
<u>53775</u>	45

MS21920-25

Purchased

No

220

Each

72.0000

4.0000

Clamp(per MIL-DTL-8783C)

Warehouse

Location

Main Warehouse

ST451	72
109181	25
<u>113282</u>	46
113744	1

4

✓

10 05 03

~~10 05 03~~

W

10 05 03

W

10 05 03

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____
 Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

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DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
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NOTE: Date & initial all entries

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April 27, 2010 9:22:12 AM

Page 2

Work Order ID: 58172



Parent Item: D212-664-101



Parent Item Name: Crosstube Fwd

Start Date: 27/04/2010

Required Date: 11/05/2010

Comments: IPP Rev:E 04.02.16 Reformat KJ/DS

Start Qty: 1.00

IPP Rev:F 06-03-29 Remove Coments on Pick List JLM

Required Qty: 1.00

IPP Rev:G 07-04-30 As per Rev C JLM

Component Item ID/ D2893-1	Replacement Manufactured	Mfg/ Manufactured	Bin No	Primary Last	Route 220	Unit of Each	Qty on 63.0000	Remaining 2.0000	Qty 	Date	Status
2.75 Support											

Warehouse Loc Qty Loc Code

Location

Main Warehouse

LG	63
51775	6
<u>53125</u>	15
53340	2
53774	20
56354	20

W 10 05 03

D3428-1



Placard

Manufactured No

240 Each 8.0000 1.0000



Warehouse Loc Qty Loc Code

Location

Main Warehouse

ST056	8
<u>55565</u>	8

10-5-4 8

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____
 Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

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April 27, 2010 9:22:12 AM

Page 3

Work Order ID: 58172



Parent Item: D212-664-101



Parent Item Name: Crosstube Fwd

Start Date: 27/04/2010

Required Date: 11/05/2010

Comments: IPP Rev:E 04.02.16 Reformat KJ/DS

Start Qty: 1.00

IPP Rev:F 06-03-29 Remove Coments on Pick List JLM

IPP Rev:G 07-04-30 As per Rev C JLM

Required Qty: 1.00

Component Item ID/ AN6-35A	Replacement	Mfg/ Purchased	Bin No	Primary	Last	Route 240	Unit of Each	Qty on 82.0000	Remaining 4.0000	Qty	Date <i>10-8-48V</i>	Status

Warehouse Loc Qty Loc Code

Location

Main Warehouse

ST343	82	
112805	2	
113422	30	
114341	50	

AN6-36A

Purchased	No	240	Each	99.0000	4.0000	
-----------	----	-----	------	---------	--------	--

Y

10-5-48L

Warehouse Loc Qty Loc Code

Location

Main Warehouse

ST343	99	
112314	3	
113121	46	
114330	50	

Y

10-5-48L

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____
 Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

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			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

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April 27, 2010 9:22:12 AM

Page 4

Work Order ID: 58172



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Parent Item Name: Crosstube Fwd

Start Date: 27/04/2010

Required Date: 11/05/2010

Comments: IPP Rev:E 04.02.16 □Reformat□KJ/DS

Start Qty: 1.00

IPP Rev:F 06-03-29 Remove Coments on Pick List JLM
IPP Rev:G 07-04-30 As per Rev C JLM

Required Qty: 1.00

Component Item ID/ MS21042L6	Replacement	Mfg/ Purchased	Bin No	Primary	Last	Route 240	Unit of Each	Qty on 433.0000	Remaining 6.0000	Qty	Date <u>10-5-11</u>	Status

Nut

Warehouse

Location

Main Warehouse

ST300	433
111578	233
114495	200

Loc Qty

Loc Code

6

AN960JD616



Washer

NAS114 9DQ663A

Purchased No

240 Each 13.0000 18.0000

4

Warehouse

Location

Main Warehouse

ST347	13
113149	13

Loc Qty

Loc Code

1112612

10-5-11

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

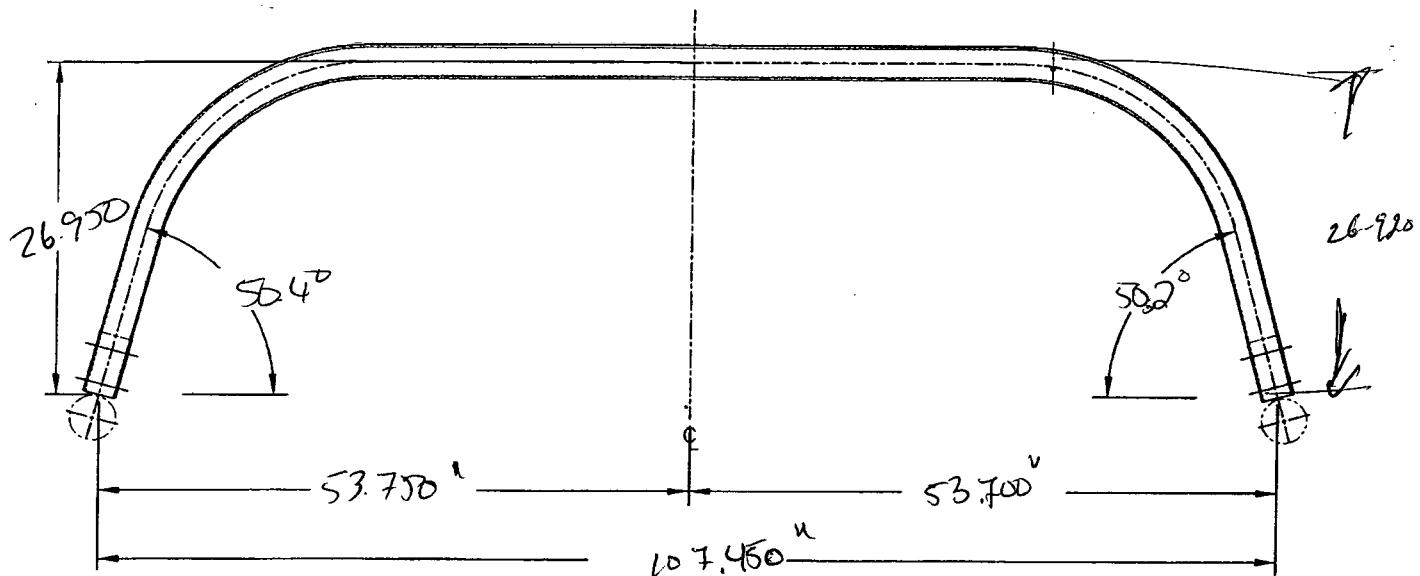
Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____
 Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

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NOTE: Date & initial all entries

DART AEROSPACE LTD	Work Order:	56 PX
Description: Crosstube High Fwd (205/212/412)	Part Number:	D212-664-101
Inspection Dwg: D212-664-141 Rev: P DCF/11/2007		Page 1 of 1

Required Dimension	Min	Max
Height	26.79	27.05
1/2 Span	53.59	53.85
Angle	49	52
Total Span	107.18	107.7



Comments

QC15 Inspection	S
Date	10/04/06

Rev	Date	Change	Revised by	Approved
A	07.02.06	New Issue	KJ/JM	
B	07.05.31	Dimensions updated per Dwg Rev C	KJ/JM	JW

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr'	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____
 Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

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			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

8 7 6 5 4 3 2 1

D

D

Item	Qty -141	Qty -141B	Part Number	Description
1	X		D212-664-141	CROSSTUBE ASSEMBLY (205/212/412 HIGH FWD)
2		X	D212-664-141B	CROSSTUBE ASSEMBLY (214 HIGH FWD)
3	1	1	D6005-128	CROSSTUBE
4	2	2	D2893-1	SUPPORT
5	4	4	D3595-063-450	RUBBER CUSHION
6	4	4	MS21920-25	CLAMP (OR MS21920-26)
7	A/R	A/R	MAGNOBOND 6398	ROCKWELL SPECIFICATION RBO-120-023 ADHESIVE (TEXTRON/BELL SPEC. 299-947-100, TYPE II, CLASS 2 ADHESIVE)

GENERAL NOTES:

- 1) MATERIAL: MANUFACTURED FROM D6005-128
FINISHED LENGTH = 126.514 ± 0.020
- 2) FINISH: CHEMICAL CONVERSION COAT PER DART QSI 005 4.1
PRIME INSIDE AND OUTSIDE PER DART QSI 005 4.2
PAINT OUTSIDE PER DART QSI 005 4.2
- 3) TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED.
- 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX.
- 6) IDENTIFICATION: SCRIBE DART PART NUMBER "D212-664-XXX" AND BATCH NUMBER ON INSIDE OF CUFF USING VIBRATING STYLUS
- 7) WEIGHT: D212-664-141 = 33.6 lbs (PER IIN-D212-664)
D212-664-141B = 33.6 lbs (PER IIN-D212-664)
- 8) PART IS SYMMETRIC ABOUT CENTERLINE.
- 9) RUN CUTTER OFF PART. BLEND OUT EDGE LONGITUDINALLY, TRANSITION SHOULD BE SMOOTH.
- 10) BEND PROGRESSIVELY WITH A MINIMUM OF 3 PASSES. MAXIMUM TUBE FLATTENING DUE TO BENDING IS 6% BASED ON O.D.
- 11) LIQUID PENETRANT INSPECT OUTSIDE SURFACE OF CROSSTUBE PER QSI 038.
- 12) INSTALL D2893-1 SUPPORT USING 0.03 TO 0.06 " THICK LAYER OF MAGNOBOND 6398 TO THE SURFACE OF D2893-1 THAT WILL BE IN CONTACT WITH THE CROSSTUBE PER QSI 015. LET CURE FOR 12 HOURS AFTER INSTALLATION AND PRIOR TO PACKAGING.
- 13) INSTALL MS21920-25 CLAMPS (OR -26) WITH D3595-063-450 RUBBER CUSHIONS TO SECURE THE D2893-1 SUPPORT ON TOP SIDE OF THE CROSSTUBE. ENSURE CLAMPS ARE OPPOSITE OF CROSSTUBE SUPPORT.
- 14) EXTREME CARE MUST BE TAKEN TO PROTECT THE OUTSIDE SURFACE OF THE TUBE. THE OUTSIDE SURFACE MUST BE SMOOTH AND FREE FROM SURFACE DEFECTS SUCH AS SCRATCHES, NICKS, OR DENTS. DEFECTS UP TO 0.005 " MAY BE BLENDED OUT LONGITUDINALLY. CIRCUMFERENTIAL GRIND MARKS ARE UNACCEPTABLE.
- 15) TORQUE CLAMPS 80 TO 100 IN-LB. ENSURE AT LEAST 1.5 THREADS SHOWING IN SAFETY AND THAT NUT HAS NOT BOTTOMED-OUT AFTER TORQUING.

SHOP COPY
RETURN TO
ENGINEERING
UNCONTROLLED COPY
SUBJECT TO AMENDMENT
WITHOUT NOTICE
WORK ORDER
NO. 38172

DS 10-4-27

RELEASED
2009-10-29
M

D	REFORMAT/REVISE GENERAL NOTES/PART LIST; REORGANIZED VIEWS AND REFORMATTED DRAWING TO CURRENT STANDARDS; ADD -141B (ZN B4-2, D4-2); REMOVED REF & ADD TOLERANCES (ZN B4-3, C6-3, CB-3; & B6-3); RELOCATED FLAG #6 PER PAR 08-046 (ZN A5-3); MOVED TURNING DETAIL & UPDATED TOLERANCE TO SHEET 4	RF	09.09.30
C	REMOVE -851 ABRASION STRIP; ADD MAGNOBOND 6398, CUSHION, REVERSE CLAMPS	PH	07.03.08
B	ADD HOLES FOR COMPATABILITY WITH BHT/AA SKIDTUBES	PH	05.02.04
A	NEW ISSUE	PH	00.12.12
REV.	DESCRIPTION	BY	DATE
DESIGN	PH	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
DRAWN	RF		
CHECKED	PP	DRAWING NO. D212-664-141	
MFG. APPR.	DS	REV. D SHEET 1 OF 4	
APPROVED	AD	TITLE XTUBE ASS'Y (205/212/412 HI FWD) NTS	
DE APPR.	DS		
DATE	09.09.30	COPYRIGHT © 2000 BY DART AEROSPACE LTD THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD	

8 7 6 5 4 3 2 1

D

C

B

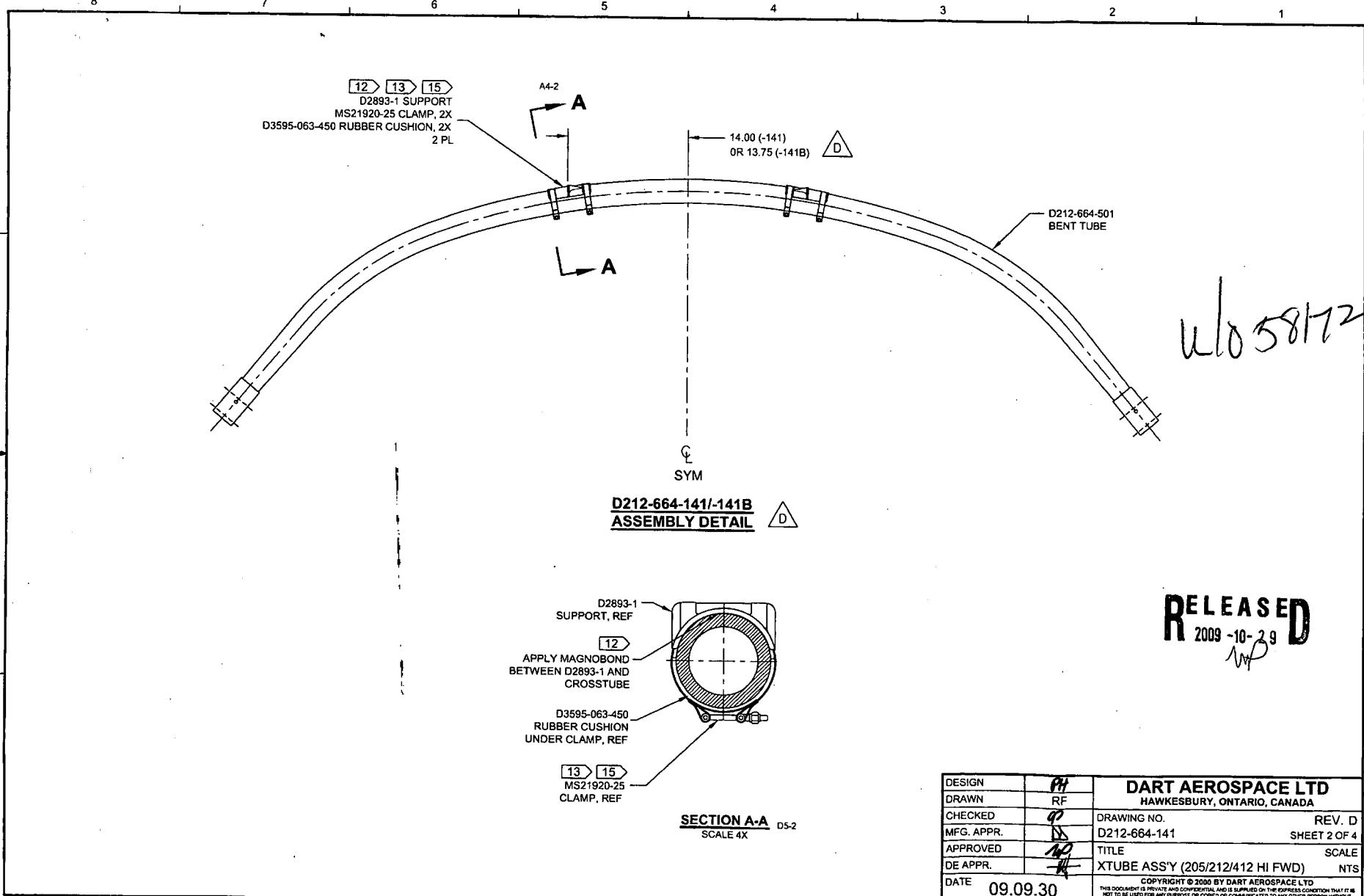
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W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____
 Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries



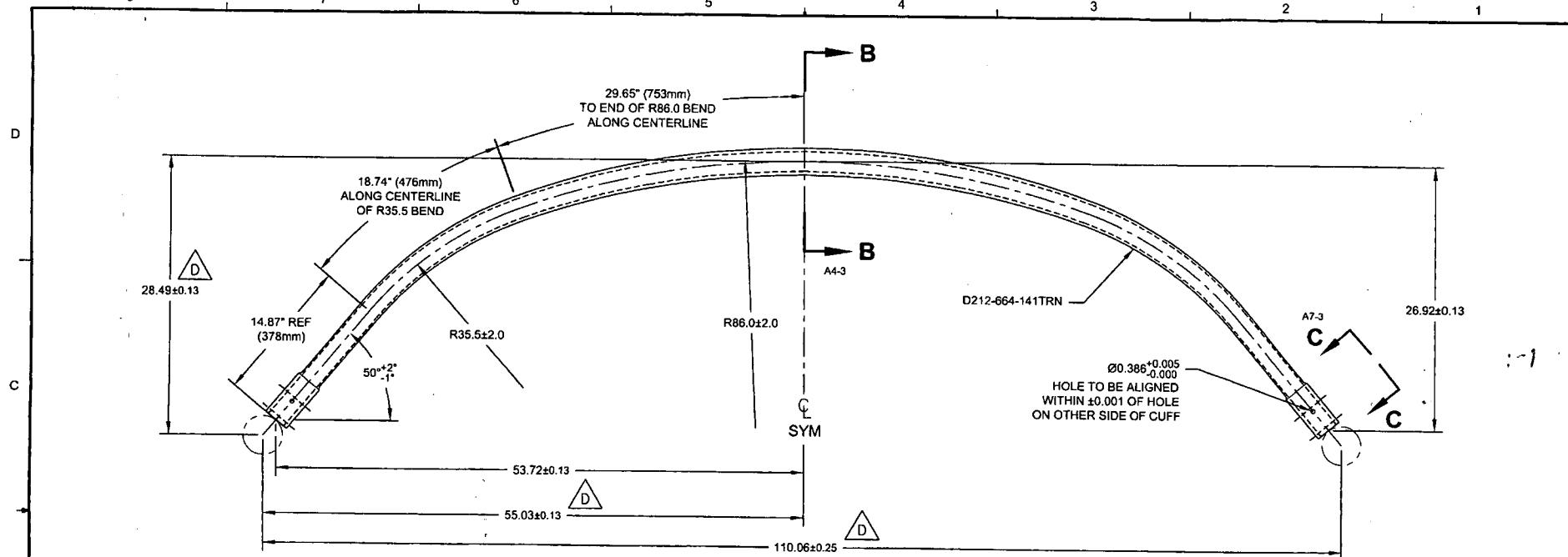
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DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____
 Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

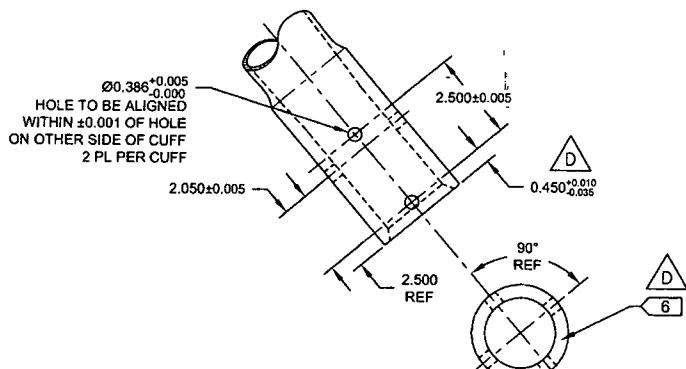
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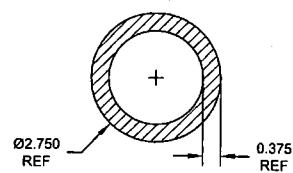
D212-664-501
BENDING AND DRILLING DETAIL 10 → D

w/038172

RELEASED
2009-10-29
MP



VIEW C-C: CUFF DETAIL C2-3
SCALE 3X



SECTION B-B C4-3
SCALE 4X

DESIGN	PH	DART AEROSPACE LTD
DRAWN	RF	HAWKSLEY, ONTARIO, CANADA
CHECKED	Q	DRAWING NO.
MFG. APPR.	DS	D212-664-141
APPROVED	MP	REV. D
DE APPR.	MP	SHEET 3 OF 4
DATE	09.09.30	TITLE XTUBE ASSY (205/212/412 HI FWD)
		SCALE NTS

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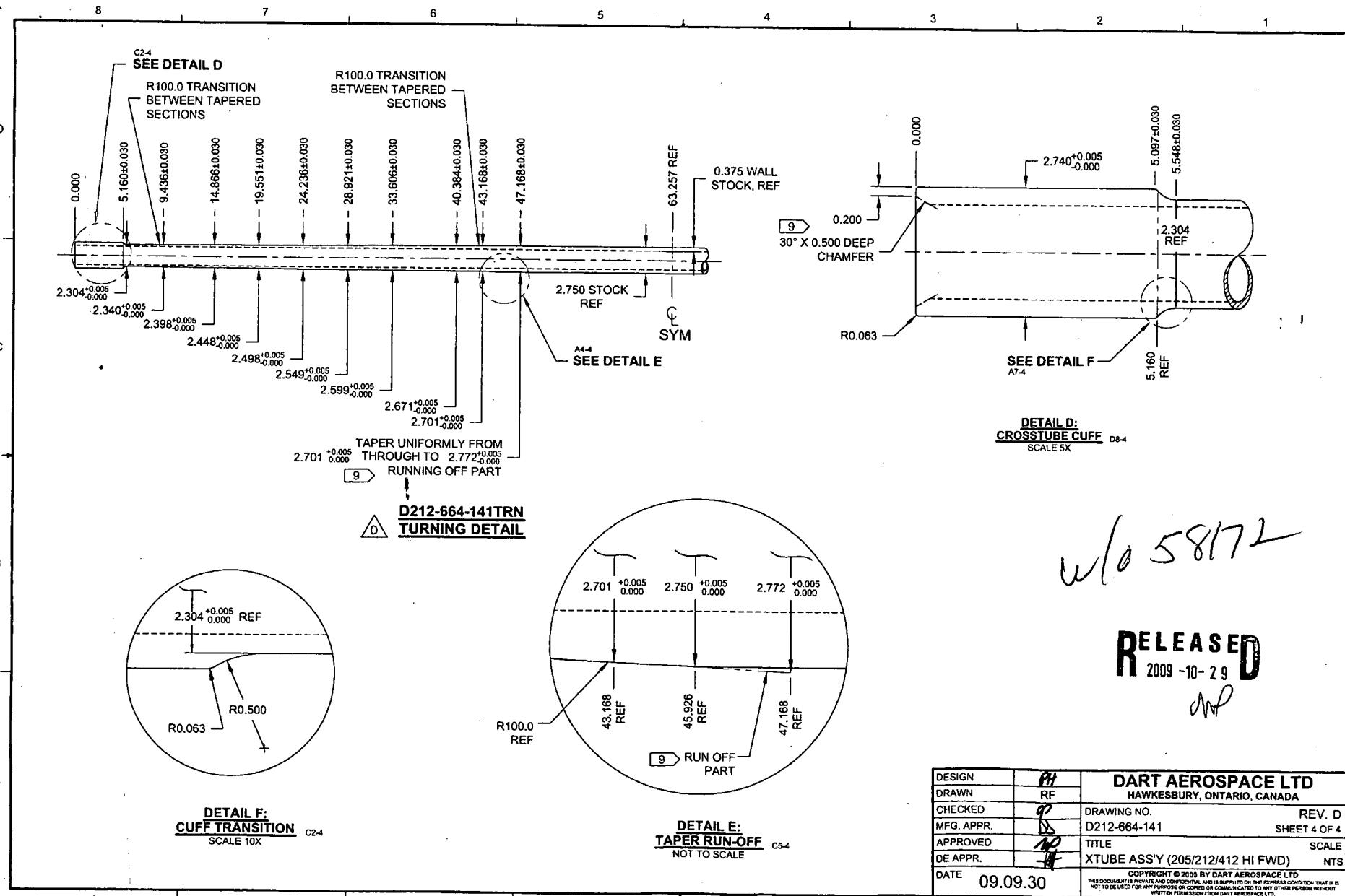
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W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____
 Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

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DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries



WFO 58172

RELEASED
2009-10-29
[Signature]

DESIGN	<u>PH</u>	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA		
DRAWN	RF			
CHECKED	<u>PP</u>	DRAWING NO.	REV. D	
MFG. APPR.	<u>DL</u>	D212-664-141	SHEET 4 OF 4	
APPROVED	<u>MP</u>	TITLE	SCALE	
DE APPR.	<u>HT</u>	XTUBE ASS'Y (205/212/412 HI FWD)	NTS	
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W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

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DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries



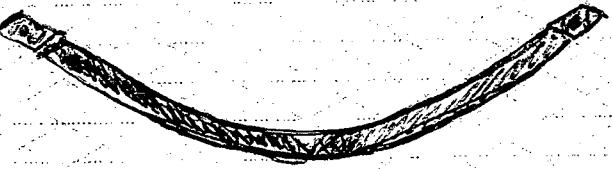
ACUREN

LIQUID PENETRANT TEST REPORT

P- 05484

CLIENT	DATE	APRIL / 29 / 2010	TIME	AM <input checked="" type="checkbox"/> PM <input type="checkbox"/>
ATTENTION	ACUREN JOB NO.	188-10-0673		
ADDRESS	PO/WO NO.	(11786)		
PROJECT	WORK LOCATION	AS ADDRESS		
ITEM(S) EXAMINED	ACCEPTANCE STD.	ASTM E1417/ASTM 038 REV./DATE 2005		
JOB DESCRIPTION	PROCEDURE NO.	LT-003	REV./DATE	2005
PART NO.	MATERIAL	ALUMINUM ALUMINIUM THICKNESS		
SCOPE	PERFORMED A "WET-PENETRANT-LIQUID PENETRANT" INSPECTION ON 100% OF THE EXTERNAL SURFACE			

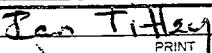
TEST DETAILS		
METHOD	<input checked="" type="checkbox"/> FLUORESCENT <input type="checkbox"/> VISIBLE	<input type="checkbox"/> WATER WASH <input checked="" type="checkbox"/> SOLVENT REMOVABLE <input type="checkbox"/> POST EMULSIFIED
FAMILY BRAND	MAGNAFLUX	BLACK LIGHT S/N 137-93 <input checked="" type="checkbox"/> OUTPUT > 1000 μW/cm ² <input checked="" type="checkbox"/> AMBIENT < 2 fc
PENETRANT	ZL-61 MINIMUM Dwell TIME 10 MIN.	LIGHTING EQUIP. <input type="checkbox"/> FLASHLIGHT <input type="checkbox"/> TROUBLELIGHT <input type="checkbox"/> OUTPUT > 100 fc @ SURFACE
PENETRANT REMOVER	WATER MINIMUM DRY TIME >10 MIN.	OTHER
DEVELOPER	SKD-S2 MINIMUM Dwell TIME 10 MIN.	LIGHT METER S/N
DEVELOPER TYPE	<input checked="" type="checkbox"/> NON AQUEOUS <input type="checkbox"/> AQUEOUS <input type="checkbox"/> DRY	CAL DUE DATE May-10-2010
TEST SURFACE		<input type="checkbox"/> AS GROUND <input type="checkbox"/> AS WELDED <input type="checkbox"/> MACHINED <input type="checkbox"/> SHOT BLASTED <input checked="" type="checkbox"/> CLEAN BARE METAL
SURFACE CONDITION	<input type="checkbox"/> -4°C/20°F <input type="checkbox"/> -4°C/20°F TO 10°C/50°F <input checked="" type="checkbox"/> 10°C/50°F TO 52°C/125°F <input type="checkbox"/> > 52°C/125°F	
SURFACE TEMPERATURE		
RESULTS-	<input type="checkbox"/> METRIC <input checked="" type="checkbox"/> IMPERIAL	

<p>-WET Flu LPI. ON 100% EXT. SURF</p> <p>1 CROSS TUBE W.O. ID 58172 2 CROSS TUBE W.O. ID 58173 3 CROSS TUBE W.O. ID 58174 4 CROSS TUBE W.O. ID 57532</p> <p>NO REJECTABLE INDICATION WAS DETECTED AS PER APPLICABLE STANDARD</p>	 <p>"Cross Tube"</p> <p>ITEM ID: - D212-664-101 (ITEM # 1 & 2) - D412-664-203 (ITEM # 3 & 4)</p> <p>10/07/2010</p>
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Scope of Services
The agreement of Acuren Group Inc. to perform services extends only to those services provided for in writing. Under no circumstances shall such services extend beyond the performance of the requested services. It is expressly understood that all descriptions, comments and expressions of opinion reflect the opinions or observations of Acuren Group Inc. based on information and assumptions supplied by the owner/operator and are not intended nor can they be construed as representations or warranties. Acuren Group Inc. is not assuming any responsibilities of the owner/operator and the owner/operator retains complete responsibility for the engineering, manufacture, repair and use decisions as a result of the data or other information provided by Acuren Group Inc. In no event shall Acuren Group Inc.'s liability in respect of the services referred to herein exceed the amount paid for such services.

Standard of Care
In performing the services provided, Acuren Group Inc. uses the degree, care and skill ordinarily exercised under similar circumstances by others performing such services in the same or similar locality. No other warranty, expressed or implied, is made or intended by Acuren Group Inc.

SIGNATURES

CLIENT REPRESENTATIVE	PRINT		SIGNATURE	DTR # E48626
TECHNICIAN (SIGNATURE):				REPORT
NAME (PRINT):	1 ST TECHNICIAN	2 ND TECHNICIAN	REVIEWED BY:	INITIALS
	SNT LEVEL 2 CGSB LEVEL 2 CGSB REG. NO. 3049	SNT LEVEL 2 CGSB LEVEL 2 CGSB REG. NO.		

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PINK - TECHNICIAN COPY

GOLD - OFFICE COPY